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10/775,103	02/11/2004	Ryo Kawahara	2023-0104002Reg	2619
22850 7590 06/07/2007 OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER DIACOU, ARI M	
			ART UNIT 3663	PAPER NUMBER
			NOTIFICATION DATE 06/07/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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DETAILED ACTION

Response to Arguments

1. In the remarks filed 3-28-2007, applicant argued the following:
 - A. On page 6, that the amendments overcome the 112P2 rejection.
 - B. On pages 6-11, that Gerrish teaches a proportionality constant that is used in his control system similar to the applicant's, but that the claimed invention uses (and claims) a proportionality constant that is a function of input power, which is an improvement not taught by Gerrish.
2. Argument A is convincing, the rejection is hereby withdrawn.
3. Argument B is moot in view of the new grounds of rejection, which has been necessitated by amendment.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 1, 4, and 33-41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
 - Regarding claims 1, 33 and 35, the "control parameter" is not a "proportional constant" it is a variable that is directly a function of input power and implicitly a

function of time. Examiner suggests “proportional constant” be changed to “proportionality” or “weight”.

Claim Rejections - 35 USC § 103

6. Claims 1, 33, 35 and 37-41 rejected under 35 U.S.C. 102(b) as being obvious over Gerrish et al. (USP No. 2001/0040720) in view of Freund et al. (NPL).

- Regarding claims 1, 33 and 35, Gerrish discloses an optical amplifier connected to an optical transmission line, comprising:
 - means for detecting an optical input and output power of said optical amplifier; [¶ 0021] [Equation 2]
 - means for obtaining a difference between a measured gain of said optical amplifier and a target gain based on the detected optical input and output power to produce an error signal; [Equation 2] [$e(t)$]
 - means for applying said error signal to each of a proportional calculation and an integral calculation to create respective proportional [$e(t)$] and integral control signals [$e(\tau)$]; [Equation 1]
 - means for adding the proportional and integral control signals to create a drive current of at least one pump laser diode provided in said optical amplifier; [$u(t)$] [Equation 1]
 - means for controlling the gain of said optical amplifier with the drive current; and [¶ 0023]

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- means for adjusting a control parameter of the proportional calculator in response to the detected optical input power. [$u(t)$ is a function of input power as a function of time, and therefore performs PI control on the fly]
- said control parameter being a proportional constant by which said error signal is multiplied to form said proportional control signal,

but fails to disclose:

- said proportional constant being represented by a function of the optical input power as a result of the adjusting the control parameter in response to the detected optical input power.

Freund teaches that if an assumption is flawed (a constant is not a constant but instead a function of time) the data and assumptions should be reevaluated by an expert and the model should be updated to include specification of more parameters. [See indicated sections of pages 236 and 239]. Therefore, it would have been obvious to one skilled in the art (e.g. an optical engineer) at the time the invention was made, to change a proportionality constant of Gerrish to a proportionality variable, for the advantage of better predictive control of gain transients.

- Regarding claims 39-41, Gerrish discloses $u(t) \propto e(t) \propto P_{in}(t)$ in equations 1 & 2.
- Regarding claim 37, Gerrish discloses the use of his amplifier in WDM networks in [¶ 0003].

- Regarding claim 38, Gerrish discloses the use of his amplifier in WDM networks in [¶ 0003]. A second optical source and a multiplexer are inherent to a WDM (Wavelength Division Multiplexed) network.

7. Claims 4, 34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gerrish as applied to claims 1, 33, 35 and 39-41 above, and further in view of Ye (USP No. 6414788). Gerrish discloses the invention with all the limitations of claims 1, 33 and 36, but fails to disclose adjusting control parameters in response to an add/drop transient event. Ye teaches a PID controller that can handle add/drop events. [Fig. 1] [Cols. 4-6]. Therefore, it would have been obvious to one skilled in the art (e.g. an optical engineer) at the time the invention was made, to use modify the invention of Gerrish, with the control mechanisms of Ye, for the advantage of making a more adaptable optical amplifier.

Conclusion

8. While patent drawings are not drawn to scale, relationships clearly shown in the drawings of a reference patent cannot be disregarded in determining the patentability of claims. See In re Mraz, 59 CCPA 866, 455 F.2d 1069, 173 USPQ 25 (1972).

9. The references made herein are done so for the convenience of the applicant. They are in no way intended to be limiting. The prior art should be considered in its entirety.

10. The prior art which is cited but not relied upon is considered pertinent to applicant's disclosure.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ari M. Diacou whose telephone number is (571) 272-5591. The examiner can normally be reached on Monday - Friday, 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Ari M. Diacou/

5/31/2007


JACK KEITH
SUPERVISORY PATENT EXAMINER